

IN the CLAIMS

Please replace the claims currently on file with the following:

Claim 1. (canceled)

Claim 2. (canceled)

Claim 3. (Currently amended) The device of claim 37 -~~4~~ wherein the impact speed of the particles is about 1,500 ft/s.

Claim 4. (Currently amended) The device of claim 37 -~~4~~ wherein the impact speed of the particles is 950 ft/s.

Claim 5. (Currently amended) The device of claim 37 -~~4~~ wherein: the throwing wheel rotates about a wheel axis, the impact rotor rotates about a rotor axis, and the wheel and rotor axes are perpendicular or substantially perpendicular with each other.

Claim 6. (Currently amended) The device of claim 37 -~~4~~ wherein: the throwing wheel rotates about a wheel axis, the impact rotor rotates about a rotor axis, and the wheel and rotor axes are aligned or substantially aligned with each other.

Claim 7. (Canceled).

Claim 8. (Currently amended) The device of claim 37 -~~4~~ wherein the throwing wheel rotates about a wheel axis and includes: a hub through which the wheel axis passes and that is operable to receive particles of material to be accelerated and, a channel operable to direct particles of material from the wheel

hub toward a periphery of the wheel, and a wheel exit located at the periphery and through which particles of material pass as the particles leave the throwing wheel.

Claim 9. (Original) The device of claim 8 wherein the throwing wheel includes 20 channels.

Claim 10. (Currently amended) The device of claim 37—4—wherein the impact rotor rotates about a rotor axis and includes: a rotor hub through which the rotor axis passes, and a rotor periphery where the impact surface is located.

Claim 11. (Original) The device of claim 10 wherein the impact rotor includes 40 impact surfaces.

Claim 12. (Currently amended) The device of claim 37—4—further comprising two or more impact rotors.

Claims 13 – 26 (Canceled)

27. (Currently amended) The ~~impact rotor device~~ of claim ~~24~~ 37 wherein the impact teeth are removably mounted to the ~~peripheral region of the body~~ peripheral impact surface.

28. (Currently amended) The ~~impact rotor device~~ of claim ~~24~~ 37 wherein the impact rotor includes 40 impact teeth and each impact tooth includes one impact surface.

29. (Currently amended) The ~~impact rotor device~~ of claim ~~24~~ 37 wherein the impact ~~surface is~~ teeth are flat or substantially flat.

Claims 30 - 36 (Canceled).

Serial No. 10/644,654

3

Claim 37. (New) A device for fragmenting particles, the device comprising:

a throwing wheel rotatable in a first direction and operable to receive the particles for accelerating and directing the particles from a periphery of the throwing wheel along a particle trajectory;

an impact rotor positioned above and having a peripheral impact surface positioned concentrically about the throwing wheel, the peripheral impact surface further comprising a plurality of impact teeth extending therefrom and aligned substantially perpendicular to the particles' trajectory;

the impact rotor rotatable in a second direction opposite to the throwing wheel for increasing an impact speed of the particles and fragmenting the particles when the particles collide with the impact teeth;

a first motor directly coupled to the impact rotor and operable to power the impact rotor, the first motor being mounted above the impact rotor; and

a second motor directly coupled to the throwing wheel and operable to power the throwing wheel, the second motor being mounted below the throwing wheel.